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COAL

ALL six major countries of the captive area possess their own hard coal, but more than 80 percent of the coal reserves of this entire region are concentrated in the Silesian (also called Silesian-Ostravan) coal basin, where it has been mined since the late eighteenth century in an ever increasing quantity. The Silesian coal basin is one of the four major basins in continental Europe: its prewar production was surpassed by that of the Ruhr basin, but in turn exceeded that of the Donets basin in the Ukraine and of the Franco-Belgian coal basin.

For political reasons, a planned exploitation of the Silesian coal basin had for a long time been impossible. Until 1914 it was divided by state boundaries between Germany (which possessed the most valuable part of it in Upper Silesia), Austro-Hungary (the Ostrava-Karvinna coal fields and the so-called Cracow basin), and Russia (the Dombrowa basin in Russian Poland). The interests of the three great powers were, to say the least, not parallel; moreover, ethnic frontiers between the Germans, the Poles and the Czechs crossed the basin and caused serious tension. After the first World War the Silesian basin was redistributed, somewhat more along ethnic lines, among Germany, Poland and Czechoslovakia, and as a result of that division new political difficulties arose among the three powers. The Germans claimed the part of Upper Silesia which became Polish, and the Poles the eastern part of the Karvinna field which was adjudged Czech. In 1938 the latter mines were transferred to Poland, and in 1939 both the Czech and Polish coal fields, including those of Cracow and Dombrowa, were forcibly incorporated into "Greater" Germany. Between 1939 and late 1944 the entire Silesian basin was administered from Berlin and run as one unit. During these years, particularly in 1943, the produc-

316 tivity of the basin achieved a level which has not been equalled since. It must be admitted, however, that during the last war the Nazis wantonly exploited the coal mines under martial law, with little regard for their future maintenance.

The Silesian coal basin, as such, suffered less damage from direct military action in 1944-1945 than from the strain on manpower, machinery, and installations during the years of war. In 1945 the whole of Upper Silesia was reunited with Poland. Its German population fled or was expelled westwards, while one million minority Poles were recognized as "autochthones" and stayed in Silesia. Since most of the coal miners in the formerly German western part of Upper Silesia belonged to that category, the mines could be worked without interruption. In 1945, too, the Kremlin adjudged the disputed eastern Karvinna mines to Czechoslovakia along the 1937 boundary. There are no Germans left either in Polish Silesia or in the Ostrava basin where they used to be numerous, but there are many Polish miners employed in the latter area. It should be stressed that the former German coal mines in Upper Silesia were situated not more than twenty miles from the prewar boundary, and that the Polish and Czech coal fields are not immediately contiguous. As a matter of course, the present division of the Silesian coal basin between the two Slav neighbors has far more justification from the technical point of view and may be regarded as stable.

[648] In 1947 the Warsaw and Prague governments agreed, in principle, to some measure of collaboration in coal mining, but no joint administration of the nationalized coal mines was created. It is possible that one of the difficulties was that the Poles produce in their part of the basin nearly four times as much coal as the Czechs in theirs, while any joint controlling body would have to be based on parity. In the last analysis, the coal policy of both Poland and Czechoslovakia in Silesia and elsewhere has been conducted since 1948 from Moscow, and there are Russian "advisers" with controlling power in Silesia as well as in all secondary coal basins of the captive area.

The level and character of the coal output in Silesia has always

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THE LEVEL AND CHARACTER OF THE COAL OUTPUT IN SILESIA HAS ALWAYS 316 433

been closely linked with political factors, which will continue to be of great importance in the future.

The peak production of the entire Silesian-Ostravan coal basin was reached under the German administration in 1943, when it yielded about 106 million tons of coal.[2] The decline of extraction began in 1944 and in 1945. With military operations being conducted in the basin itself, and the Red occupation gradually extending westward with all its overwhelming legal, administrative, and social consequences, the working of the mines was so disturbed that the basin produced only about 26 million tons. Since early 1946, however, the rise in production has been very rapid, particularly in Polish Silesia. The restoration of the productivity of the basin between 1946 and 1948 almost to its prewar level must be recognized as a remarkable technical and organizational achievement. The efficiency of the coal miners could not be raised to its prewar level (a characteristic feature of Communist economy) and the loss of many skilled miners, in particular those of German nationality, had to be made good by replacing them by scores of thousands of new, inexperienced men. The real difficulties began when the Warsaw and Prague governments were assigned the task of reaching the wartime peak of coal extraction and exceeding it within the frame of the Czech Five Year Plan and the Polish Six Year Plan. Even so the output of the mines kept growing, though at a slower rate, and in 1950 reached about 87 million tons (73 million tons in the Polish and 14 million tons in the Czech part of the basin), an increase over the 1937 figure.[3] Late in 1950 coal mining in the Ostravan part of the basin met with serious difficulties due to the shortage of manpower: the Czechs, like the French, and lately the British, dislike being coal miners. In the middle of 1951 these difficulties spread to the Polish part of the basin in the wake of food shortages. The subject is discussed in more detail later in this study.

According to the long-term plans, the output of the Silesian basin is expected to exceed the 1943 peak and to reach at least about 112 and perhaps as much as 118 million tons: 92 to 95

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316 433 million tons in Poland by 1955, and 20 to 23 million tons in Czechoslovakia by 1953. It can be assumed in advance that every effort will be made to fulfill the Polish plan ahead of schedule, probably by the end of 1954.

The Silesian coal fields are the basic source of hard fuel for the captive area as such and in particular for the two countries which share the basin. But there are in captive Europe a number of minor coal fields spread over this area outside of Silesia, whose joint output represents about one sixth of captive Europe's total production of coal. Even though their 1950 production did not exceed 14 million tons, the secondary coal basins of captive Europe are of decisive importance for such branches of industrial activity as cannot use lignite profitably as hard fuel, and because of their geographical location. In particular, a dozen or more iron and steel plants in Eastern Germany, Western Bohemia, Hungary, and Rumania, situated outside the Silesian-Ostravan basin or even far from it, largely depend on the supply of local coal in their operations.

Among these minor coal basins the following should be noted:

1. The Lower Silesian coal basin in Poland on the northern slopes of the Sudeten Mountains, also known as the Wałbrzych (Waldenberg) basin, with a present output of about 5 million tons of high grade coking coal;

2. The Zwickau-Oelsnitz basin in Saxony, with a present output of roughly 3 million tons;

3. The four minor coal producing areas in Bohemia (Kladno, Plzeň, Trutnov and Rosice basins) with a present joint output of some 4 million tons;

4. Several minor coal fields in Hungary, Rumania, and Bulgaria, with a total present output of about 2 million tons of hard coal.[4]

Since 1949 great efforts have been made to increase the production of these minor basins up to a joint level of approximately 20 million tons of coal at the end of the current long-range economic plans. Judging by the indices of production published by the satellite governments, the progress in these coal fields

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is uneven. The best performance to date has been that of the Saxon basin; the Hungarian and Rumanian output, though lagging behind the inflated annual plans, is described as growing rapidly; the Lower Silesian basin in Poland, where huge investments in machinery are being made, is apparently working in a satisfactory way; the secondary Czech coal fields were in the fall of 1951 several percent behind the prescribed targets.[5] The food crisis of 1951 is having a pronounced adverse effect upon the productivity of the minor Czech and Hungarian coal basins and may lessen that of the Lower Silesian and Rumanian mines. It may be assumed that if all these minor coal basins are capable of much development and extension, only some of them will be able to fulfill on schedule the very high quotas of production set by Moscow.

To sum up, at the end of the present long-range plans, that is on the average by the end of 1954 or beginning of 1955, the entire extraction of coal in all the basins of the captive area is expected to reach about 133 million tons and possibly a few million more.[6] This global target exceeds the prewar output of the Ruhr basin, and is equal to the output of the Soviet Union in 1938; it would be very much larger than the present output of the Donets basin in the Ukraine, estimated at less than 100 million tons.[7] The target of 133.5 million tons can also be compared to the output of bituminous coal in Pennsylvania in 1942 which reached 143 million tons.

"The output of coal increased in 1950 by 5 percent in comparison with that of 1949. Industrial production as such increased by 30.8 percent in comparison with 1949. It follows that industry grows far more rapidly than the production of fuel. At the same time, railroad transportation increases more rapidly than the output of coal. The demand of the market for coal as domestic fuel is also increasing . . . in 1950, the consumption of domestic coal was nearly 3.5 times as large as prewar. . . . At the same time, the demand for coal for exportation remains unchanged. . . . In that situation, the problem of increasing the output of coal, of fulfilling and overfulfilling the plan, must become one of the central issues of our work in 1951." This quotation comes from a speech of Hilary Minc, the economic master of Poland, which he delivered in February 1951, to introduce the economic plan for 1951.[67] There is no doubt that these words apply equally well to Czechoslovakia and all the other captive countries.

Probably the best economic brain behind the Iron Curtain, Minc realizes very well the danger of the situation. In his speech he offered a number of remedies: new investments (*i.e.*, new mines), higher mechanization and increased efficiency in organization and labor. There is no doubt, again, that as long as the discrepancy between the supply of coal and the demand for it by industry and transport remains the only reason for worry by the Polish or any other satellite government, these measures, which are already being applied, can improve the performance of the mines and increase the output of coal. Statistics show that output has been increasing in Poland by about 4 million tons per annum (1948: 70 million tons; 1949: 74 million; 1950: 78 million tons). But this rate of increase appears to be insufficient. Unless it can be accelerated, the target of 100 million tons of coal by 1955 (in practice, by 1954) will not be achieved. Moreover, even if this goal should be achieved, the planned output would not cover the demand as described by Minc.

It is a fact that even if the Communist economy functions at an optimum "normal" level the efficiency of labor in coal mining

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316 and oil extracting cannot be raised above a certain point, lower than that of the prewar period, whatever the achievements in other branches in industry. Polish coal miners were the best in Europe: in 1937 the per capita production of coal was 0.8 tons daily in France and Belgium, 1.2 tons in Great Britain, 1.6 tons in Holland, 1.5 tons in Germany, and 1.8 tons in Poland; that of Polish Silesia was 2.0 tons daily.[68] Since the last war, despite great efforts, moral persuasion and flattery, and the bonuses, uniforms and medals with which the Warsaw government has cajoled the coal miners, at the same time threatening them with police reprisals, the individual productivity of the coal miners has never reached its prewar level. The postwar per capita production in Poland has never exceeded 75 to 80 percent of prewar figures,[69] and until the crisis of 1951 that level could have been regarded as more or less fixed. The performance of the Czech, Hungarian, and Rumanian coal miners has been, if anything, lower.

Even before the present crisis, since human nature cannot be influenced beyond a certain point, the satellite governments knew that they must replace the ineffective men by effective machinery. In this they have followed the experience of the Soviet Union, which for years had been suffering from the fluidity and inefficiency of labor in mining. There is much to be done in this respect. All over the captive area many mines are technically obsolete and not sufficiently mechanized, and production continues to depend in the last analysis on the human element. In these mines new methods of production are being introduced. Underground traction is being electrified, transmission belts installed, and machinery for winding and hoisting, sizing and washing is being introduced. Soviet mechanical coal cutters, the so-called Donbas coal combines, are expected gradually to replace the more antiquated methods of coal cutting.[70]

185 316 The best possibility for the satellite governments to increase the output of coal lies in the expected production of the new "scientific" coal mines which are being built in the course of the present long-range plans. Within its Six Year Plan

Poland alone anticipates the construction of eleven large mines with a total annual output of 9 million tons of coal, and 36 extensions of the existing mines with an output of 14 million tons. Of the former, 8 mines are presently under construction, each of them expected to produce 6 to 10 thousand tons of coal daily.[71] More money was invested in Polish coal mining in 1950 than during the years 1945-49 inclusive, and the 1951 investment is far larger than that of 1950.[72] Similar investments in the other captive countries are being made with increasing rapidity.

While the output of coal has been stimulated by all these methods, efforts are being made to restrain the consumption of coal and to insure more efficient utilization. Since the middle of 1950, saving coal, in particular coal of good quality, has become one of the basic aims of the captive area's economy. The daily press eulogizes engineers and technicians who manage to operate factories and run trains on minimum quantities of coal or on low grade coal. All over the captive area, railroads and industrial plants substitute lignite or coal waste for hard coal fuel. In Soviet Berlin alone, the substitution of lignite for coal at the Klingenberg power plant will result in the saving of 500,000 tons of hard coal per annum.[73] At the same time electrification is being speeded up, since it will result in a lesser expenditure of fuel. During the last war, when the Nazis were faced with a grave fuel shortage, the "heat-engineers"[74] charged with this problem by the minister of armaments, Speer, introduced far-reaching improvements in the exploitation of the hydroelectric and thermal plants and saved up to 50 percent of the fuel and current.[75] Many of these men are available behind the Iron Curtain and, together with their colleagues from the other captive countries and with Soviet advisers, they are doing their best to wring the most they can from the local resources. When Selbmann, minister of heavy industry, states that the Eastern German thermal plants have reached the outside limit of load capacity,[76] the statement must be taken at its face value.

This analysis of the situation seems to lead to the conclusion that under "normal" conditions the Communist regimes of cap-

316 433 tive Middle Europe can gradually increase their output of coal, and thus can assure a constant growth of their basic source of industrial energy. Much progress in that direction can be made through high investments and multiple technical improvements, as well as by better organization of production. But the "normal" conditions presuppose that the targets for coal output remain within the range of feasibility and the miners are assured of a minimum acceptable standard of living. In the course of 1951, either one or both of these conditions were not kept by most of the satellite governments, and the planned output of coal is at present exposed to considerable danger.

In February-March 1951, under relentless pressure from Moscow, the Czechoslovak and Hungarian governments were forced to decree a notable speed-up of their long-range industrial plans, equivalent to boosting their annual quotas of production from the beginning of 1951. The Czech 1953 target for coal has been increased from 20.8 to 25 million tons and that of lignite from 32.2 to 38.6 million; the Hungarian 1954 target for both coal and lignite from 24.2 to 27.5 million tons. *Ipso facto*, the annual targets for 1951, 1952, and future years, have been boosted accordingly. Since the old targets were already high, it is perfectly legitimate to doubt whether these new plans can be fulfilled in time. In the light of recent statistical data, Czech coal mining is fulfilling the old plan but not the inflated new one. The same seems to be true in Hungary.

433 511 466 Quite apart from the real or apparent unfeasibility of the two coal plans in question, the recent acute food shortage in most of the captive area (except in Eastern Germany and possibly Bulgaria) has resulted, since the early fall of 1951, in an appreciable lowering of the standard of living of all industrial workers, and of coal miners in particular. The reasons for this food shortage are many: one of them is a long period of drought in most of the captive area and the consequent loss of much of the potato crop, the staple food of the population. Even if the bread grain crops were satisfactory, the shortage of potatoes would be a major calamity for men and animals alike, and by

itself would lead to a shortage of meat, especially pork. This current emergency caught the satellite governments unprepared, the more so because they had been stripping their countries of foodstuffs by military stockpiling, sending vast amounts of meat, sugar, and other staples to Russia and Red China, and antagonizing the peasant producers of food by ever increasing taxes, supply quotas, and other forms of persecution and chicanery. The net consequence of such policies and practices is that in many industrial areas of captive Middle Europe the people have had very little meat since the summer of 1951. Their supply of sugar, vegetables, and potatoes has also been very short. The Polish, Czech, Hungarian, and Rumanian coal miners were already badly housed, badly clothed, and overworked. Now they are also badly fed, and they may be — or actually are — incapable of working as much as is expected. The lowered efficiency of the miners means less coal and less coal means in turn less electric power, less machinery, and less chemicals. A shortage of fuel may be equivalent to a nonfulfillment of industrial targets all over the four countries in question.

Statistical data naturally lag behind the real situation in industry. At the end of 1951 the available statistical figures were not yet fully reflecting the most serious consequences of the food crisis. However, they were indicative of a trend toward a depression in coal mining.

In Poland the coal target for the third quarter of 1951 was not fulfilled, and the actual production was only 2 percent higher than a year before, instead of the expected 5 to 6 percent. During the first half of 1951 coal extraction in Rumania was nearly 8 percent behind the plan, although it was claimed to be 26 percent above the output during the corresponding period of 1950. In the same period in Hungary coal was 6 percent behind the schedule, although again production was claimed to be 22 percent higher than 1950. In Czechoslovakia the slump in coal production was much more pronounced. It began by a temporary failure of production towards the end of 1950; even though it was overcome, the Czech government found itself unable

316 433 to supply adequate supplementary manpower to the coal mines. In the third quarter of 1951 the joint coal and lignite plan was fulfilled only by 91 percent. Lignite mining was more or less satisfactory, but coal mining (in particular in the important Ostrava-Karvinna coal basin) was actually on the verge of a possible breakdown; by the end of October 1951, Czech coal production was 1.3 million tons behind schedule. Eastern Germany alone was implementing its coal plan.

[466] Faced with a direct threat to their planning, the satellite governments took, towards the end of 1951, a series of harsh steps. Their object was to assure higher wages and a better diet for the coal miners and to prevent the increasing absenteeism and bad discipline in the mines, as well as the increasing fluidity of manpower (in particular in Czechoslovakia and Hungary). Under the impact of these measures, the production curve in the all-important Silesian-Ostravan coal basin went upwards again in November and December 1951. It is possible that the Polish coal target for 1951 (somewhat above 83 million tons) was reached before the end of the year. It is doubtful, however, that the Czech target was reached. In the first weeks of 1952 it is too early to say whether this new production rise is temporary or permanent. It depends very largely on the supply of foodstuffs. The police states have at their disposal many effective methods of dealing with critical situations, but they cannot produce foodstuffs at will. It took the Soviet government years to overcome a similar situation in the Donets basin coal mining.

316 The production of lignite in the captive area is far less difficult for the satellite governments, in particular for Eastern Germany, which mines several times more lignite than all the other countries of Middle Europe combined. The explanation lies in the technique of extraction. The deposits of lignite generally lie close to the surface of the ground and can be worked by stripping and scraping from open mines, or they are covered by a shallow overburden[77] that must be removed before the mineral can be mined, as is true of some coal deposits in the United States. Only one fortieth of the nearly unlimited reserves of lignite in Eastern

Germany (in particular in Saxon Lusace, or Lausitz) has to be mined from deep pits; the rest of it, lying on the surface or in shallow strata up to a depth of 165 feet, can be worked from open mines.[78] The main difficulty lies in removing and carrying away the overburden of soil, sand, and gravel; at present this sometimes amounts to as much as 12 to 15 times the volume of lignite extracted. Unlike those of coal, many lignite seams are very thick.

Most of the shallow strata of lignite are gradually being exhausted, and the ratio of overburden to lignite is slowly but surely increasing. However, many difficult technical and social problems of coal mining do not apply to lignite mining in the northern part of the captive area. This is also true, though not to the same extent, in Hungary and Rumania. The extraction of lignite, in particular in Eastern Germany, does not depend so much on an adequate supply of skilled miners as on machinery, and can be speeded up in proportion to the investment in mechanical excavators and transportation.[79] During the last war the Nazis stepped up the output of lignite by machinery and were able to cover huge requirements for electric power as well as for synthetic oil and rubber. Under present circumstances, the planned quotas for lignite in Eastern Germany and possibly Czechoslovakia can be met assumedly without too much difficulty. This may also be true for some deposits in the southern captive countries. Consequently, thermal electric plants in a large part of the captive area seem to be assured of a sufficient amount of fuel. It is true that hitherto lignite could not have been used in smelting, but the huge iron and steel "West-Kombinat" under construction at Calbe-on-the-Saale in Sachsen-Anhalt will be working exclusively on lignite.[80]

The oil production of the captive area depends on factors which are difficult to assess. The reserves of coal in the area are for all practical purposes unlimited, and new investments in coal and lignite mining, together with a propitiatory attitude towards labor, will always result in more coal being extracted. The pro-

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FOOTNOTES

[1] Hilary Minc, *A Fruitful Collaboration of Free Peoples*, quoted after *Pravda*, Moscow, by *Zycie Gospodarcze* (Economic Life), Warsaw, 1951, No. 19. Minc states that, in comparison with 1938, the total industrial output in the first half of 1951 reached 165 percent in Czechoslovakia, 208 percent in Rumania, 268 percent in Poland, 273 percent in Hungary and 335 percent in Bulgaria, while that of Albania reached 423 percent in 1950. The 1938 level of the industrial output in the Soviet zone of Germany was exceeded towards the end of 1950, and by the middle of 1951 might have reached 115 percent of the 1938 production.

[2] Jean Chardonnet, *Les conséquences économiques de la guerre*, Paris, Hachette, 1947.

[3] No detailed exact figures of the coal output in the Silesian-Ostravan basin can be given. It is not easy to distinguish it statistically from the global data of output in Poland and Czechoslovakia, both of which have coal mines outside of that basin. The annual and long-range plans of all captive countries are based only upon such global data and do not make distinction between the production of individual basins.

[4] Hungarian, Rumanian and Bulgarian statistics do not make sufficient distinction between black and brown coal. Figures concerning the coal output in these three countries are estimated according to the ratio between the output of the two kinds of coal as known from previous statistics. That ratio is supposed to be constant.

[5] During the third quarter of 1951 the plan for coal extraction in Eastern Germany was not entirely fulfilled, yet output increased by 11.5 percent in comparison with the corresponding quarter of 1950 (*Wirtschaft*, Berlin, 1951, No. 43). The minor Czech coal basins were by the end of September 1951, about 150,000 tons, *i.e.*, some 3 or 4 percent behind the prescribed target (speech by Premier Zápotocký, *Rude Pravo*, Prague, 1 November 1951). The Hungarian coal and lignite mines were 6 percent behind the plan for the second quarter of 1951, and 10 percent behind that for the third quarter (*Nepszava*, Budapest, 23 October 1951); yet an official report claimed that in the second quarter of 1951 the output of both black and brown coal exceeded by 22 percent that of the second quarter of 1950 (*Gospodarka Planowa*, Warsaw, 1951, No. 9); the Tatabánya black coal mines were responsible for almost half the coal deficit (speech by Rakosi, *Nepszava*, 23 October 1951). In Rumania the situation was apparently somewhat

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more favorable: although the output of black and brown coal was also lagging behind schedule, its extraction in the second quarter of 1951 was claimed to have exceeded that of the second quarter of 1950 by 26 percent (*Gospodarka Planowa*, 1951, No. 10). No detailed data are known for coal extraction in Bulgaria.

[6] 100 million tons (according to some indirect indices, 103 million) in Poland, 25 million in Czechoslovakia, 3.5 million in Eastern Germany, about 3 million in Hungary, about one million in Rumania, and about 0.5 million in Bulgaria. The Eastern German target, originally set at 4 million tons, was subsequently reduced to 3.5 million tons (the Law of 1 November 1951, *Wirtschaft*, Berlin, 1951, No. 44) — the only known instance of this kind. Yet various utterances of the chief planners in Poland and Rumania, and of Eastern Germany as well, leave little doubt that the long-range economic plans of these countries, supposed to terminate by the end of 1955, will be accelerated by one year, as has already happened with the Czechoslovak and Hungarian plans. In anticipation of that step, the writer assumes throughout his study that the figures of planned output in Eastern Germany, Poland, and Rumania in 1955 in fact pertain to 1954. An arbitrary but plausible figure of one million tons increase in the coal output in Czechoslovakia has been accepted for 1954 in comparison with the output planned for 1953.

[7] London *Economist*, 24 February 1951. According to the Soviet Fourth Five Year Plan, that figure should have been 86 million tons. Since the plan was overfulfilled, it was probably larger.

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[8] Most of the descriptive data on lignite comes from an exhaustive study by Sir Richard Redmayne, *Encyclopædia Britannica*, 1943, Vol. V. p. 878 ff.

[9] United Nations, Geneva, 1950, p. 231.

[10] Redmayne, *op. cit.*

[11] In its original version of 1950 the Eastern German Five Year Plan foresaw a production of 205 million tons of lignite by 1955. The new figure of 225.2 million tons in 1955 comes from the revised version of the plan as adoped in the law of 1 November 1951, (*Wirtschaft*, Berlin, No. 44, 2 November 1951).

[12] The first figure is based on the indices of the coal production in 1951 in comparison with the preceding years, as published by the Soviet press. The second comes from Stalin's speech of 9 February 1946.

[13] In his speech of 7 November 1951, Beria stated that in the course of the past several years the output of coal in the Soviet Union has been growing on the average of 24 million tons per year. (*Pravda*, 7 November 1951).

[14] The vast Lauchhammer lignite coking plant now under construction (and possibly some other new plants) is expected to produce 300,000

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1. It may be taken for granted that every effort will be made to fulfill the Eastern German, Polish, and Rumanian plans one year ahead of schedule, that is, by the end of 1954 or beginning of 1955.

2. It may be expected that, having fulfilled its plan for power by the end of 1951, Bulgaria will launch a new plan which may aim at an output of about one billion *kwh* more by the end of 1954 or the beginning of 1955 — an entirely justified supposition.

3. It is true that the output of 16.5 billion *kwh* which Czechoslovakia plans to reach in 1955 cannot be accepted as its target for 1954 or beginning of 1955, and a much lower figure should be taken instead.

4. But the larger Bulgarian and the lower Czechoslovakian figure may compensate one another, especially if a lower figure of the Hungarian output in 1954 (6,000 million *kwh* instead of 6,500 million) is accepted as the basis for the tentative computation.

Under the circumstances the writer regards the mere arithmetic sum of the six national targets, equivalent to more or less 82 billion *kwh*, as an entirely acceptable hypothesis: the margin of error should not exceed one billion *kwh*.

[60] Harry Schwartz, *New York Times*, 23 January 1951.

[61] Estimates of the writer.

371 [62] *Economic Survey of Europe in 1949*, United Nations, Geneva, 1950, p. 231.

[63] 82 billion *kwh* represent the equivalent of somewhat over 50 million tons of coal (1,590 *kwh* equivalent to one ton of coal, see footnote 62). This figure corresponds to a general figure for Europe; see p. 12 of the same *Survey*.

[64] Estimates of the writer.

[65] Silesian coal has been exported for generations, and trade in it flourished between the two World Wars. Industrial production and railroad transportation in the countries named depend to some extent on the specific technical quality of Polish coal.

[66] 800 million *kwh* from Hamburg and West Berlin, according to *Wirtschaftsrevue*, Karlsruhe, 15 December 1950. See also footnote 14.

371 [67] *Trybuna Ludu*, Warsaw, 1951, No. 53.

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316 [68] *Statistical Yearbook of Poland*, 1939, p. 239; also *European Steel Trends*, United Nations, Geneva, 1949, p. 51.

[69] Evaluation by Alfred Zauberman, *Dziennik Polski*, London, 1951.

[70] The production of the Donbas combines began in 1951 at the Piotrowice plant of heavy mining machinery in Poland (*Wirtschaft*, Berlin, 1951, No. 32) and in at least one of the corresponding plants in Czechoslovakia.

185 [71] *Trybuna Ludu*, Warsaw, 1951, No. 160.

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[72] National Plan for 1951.
[73] *Wirtschaft*, Berlin, 1951, No. 21.
[74] Chardonnet. The German word is "Wärme-Ingenieure."
[75] *Ibidem.*
[76] *Wirtschaft*, Berlin, 1949, No. 13.
[77] The German technical word is "Abraum."
[78] Max Fritsch in *Wirtschaft*, Berlin, 1951, No. 32.
[79] Redmayne, *op. cit.*
[80] *Wirtschaft*, Berlin, 1951, No. 40.
[81] *Rumanian Information Bulletin*, Washington, 25 January 1951.
[82] *Ibidem.*

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